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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/780,191

02/17/2004

Hiroyuki Yamagishi

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9923

530 7590 03/19/2009  
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EXAMINER

BAKER, STEPHEN M

ART UNIT

PAPER NUMBER

2112

MAIL DATE

DELIVERY MODE

03/19/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/780,191	<b>Applicant(s)</b> YAMAGISHI, HIROYUKI	
	<b>Examiner</b> Stephen M. Baker	<b>Art Unit</b> 2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,8,9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8,9 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,996,764 to Yamada (hereafter "Yamada") in view of U.S. Patent No. 4,866,692 to Saito *et al* (hereafter "Saito") or U.S. Patent No. 5,175,545 to Uchiyama *et al* (hereafter "Uchiyama").

Yamada discloses arrangements for reproducing data encoded by a turbo code encoder then encoded by an RLL code encoder and then carried by a PR channel as a DC-free code. Yamada shows (Fig. 1) an "acquiring means" in the form of a reproduction circuit 41 which presumably effects an equalization of the partial response (PR) channel to the target PR channel response, however Yamada does not mention as much. Official Notice is taken that it was conventional at the time the invention was made to equalize a PR channel output to a target PR response. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement Yamada's reproduction circuit 41 with an equalizer for equalization of the partial response (PR) channel to the target PR channel response. Such an implementation would have been obvious because equalizing a PR channel output to a target PR response was already conventional.

Yamada's combination of a PR-Channel APP decoder 43 and an RLL demodulator 44 is based on a combined RLL/PR code trellis, where the RLL code is a (1, 7) RLL code "satisfying a run length limitation" and having "a first finite state transition diagram." Yamada's combined logic 43, 44 is thus based on a "trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference," where the "intersymbol interference" corresponds to the trellis of the PR channel. As the PR channel transfer function is itself DC-free, the "1"s and "0"s of Yamada's DC-free code are presumably carried in the form of DC-symmetric values (i.e. "NRZ" or "NRZI" values, such as +1, -1). Consequently, the RLL/PR trellis can be described as a "finite state transition diagram" that "includes states defined based on values of a non-return to zero coding of states, and whether a polarity is inverted or not," which states are inherently capable, of course, of being carried in a "transition table."

Yamada does not mention using a (2,7) RLL code in place of the (1, 7) RLL code. Saito and Uchiyama both disclose that the (2,7) RLL is a well-known alternative to the (1, 7) RLL code.

Official Notice is taken that a (2,7) RLL code is a well-known standard type of RLL code. Yamada's (1, 7) RLL embodiment is exemplary, and Yamada discusses RLL codes in general. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to substitute a (2,7) RLL code in place of Yamada's (1, 7) RLL code. Such a substitution would have been obvious because a (2,7) RLL

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code is a well-known standard type of RLL code alternative to the (1, 7) RLL code, as evidenced by Saito and Uchiyama, among others.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1, 8, 9 and 11 have been considered but are moot in view of the new grounds of rejection.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques H. Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen M. Baker/  
Primary Examiner  
Art Unit 2112

smb